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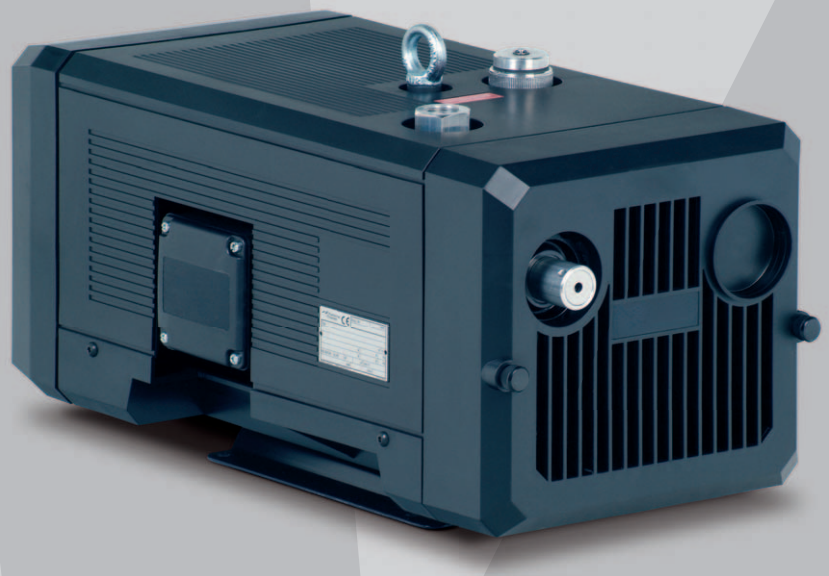
Original Operating Instructions
V-VTN

V-VTN 6 | 10 | 15 | 25 | 40 | 60

Elmo Rietschle
A Gardner Denver Product



V-Serie
V-Series
Drehschieber
Rotary Vane

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1 Foreword

1.1 Principles

These operating instructions:

- are a part of the following oil-flooded rotary vane vacuum pumps V-VTN 6, V-VTN 10, V-VTN 15, V-VTN 25, V-VTN 40 and V-VTN 60.
- describe how to use them safely and properly in all life phases.
- must be available where the equipment is used.

1.2 Target group

The target group for these instructions is technically trained specialists.

1.3 Supplier documentation and accompanying documents

Document	Contents	No.
Supplier documentation	Operating Instructions	BA 280-EN
	Declaration of Conformit	C 0083-EN
	Declaration of harmlessness	7.7025.003.17
Spare parts' list	Spare parts' document	E 280
Data sheet	Technical data and graphs	D 280
Info sheet	Storage guidelines for machines	I 150
Manufacturer's declaration	EU Directive 2002/95/EG (RoHS)	—

1.4 Abbreviations

Fig.	Figure
V-VTN	Vacuum pump/
m^3/h	Pumping capacity
mbar (abs.)	Final vacuum, operating vacuum

1.5 Directives, standards, laws

See Conformity Declaration

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1.6 Symbols and meaning

Symbol	Explanation
▷	Condition, pre-requisite
####	Instructions, action
a), b),...	Instructions in several steps
⇨	Results
[-> 14]	Cross reference with page number
	Information, note
	Safety symbol Warns of potential risk of injury Obey all the safety instructions with this symbol in order to avoid injury and death.

1.7 Technical terms and meaning

Term	Explanation
Machine	Pump and motor combination ready to be connected
Motor	Pump drive motor
Vacuum pump	Machine to create a vacuum
Rotary vane	Machine's design or active principle
Pumping capacity	Vacuum pump volume flow related to the condition in the suction connection
Final pressure (abs.)	The maximum vacuum that a pump reaches when the suction opening is closed. Given as absolute pressure.
Permanent vacuum	The vacuum or the suction range at which the pump operates permanently. The permanent vacuum or intake pressure is ≥ than the final vacuum and < than the atmospheric pressure..
Noise emission	The noise emitted at a specific loading given as a figure, sound pressure level dB(A) as per EN ISO 3744.

1.8 Copyright

Passing on or copying this document, using and providing information on its contents are prohibited unless expressly permitted.

2 Safety

The manufacturer is not responsible for damage if you do not follow all of this documentation.

2.1 Warning instruction markings

Warning	Danger level	Consequences if not obeyed
DANGER	immediately imminent danger	Death, severe bodily injury
WARNING	possible imminent danger	Death, severe bodily injury
CAUTION	possible hazardous situation	Slight bodily injury
NOTICE	possible hazardous situation	Material damage

2.2 General

These operating instructions contain basic instructions for installation, commissioning, maintenance and inspection work which must be obeyed to ensure the safe operation of the machine and prevent physical and material damage.
The safety instructions in all sections must be taken into consideration.
The operating instructions must be read by the responsible technical personnel/ operator before installing and commissioning and must be fully understood. The contents of the operating instructions must always be available on site for the technical personnel/operator. Instructions fixed directly onto the machine must be obeyed and must always remain legible. This applies for example to:

- Symbols for connections
- Data and motor data plate
- Instruction and warning plates

The operator is responsible for observing local regulations.

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2.3 Designated use

The machine must only be operated in such areas as are described in the operating instructions:

- only operate the machine in a technically perfect condition
- do not operate the machine when it is only partially assembled
- the machine must only be operated at an ambient temperature and suction temperature of between 5 and 40°C. Please contact us for temperatures outside this range.
- the machine may convey, compress or extract the following media:
  - convey air with a relative humidity of 30 - 90%
  - all non-explosive, non-inflammable, non-aggressive and non-poisonous dry gases and gas air mixtures

2.4 Unacceptable operating modes

- extracting, conveying and compressing explosive, inflammable, aggressive or poisonous media, e.g. dust as per ATEX zone 20-22, solvents as well as gaseous oxygen and other oxidants, extremely damp air, water vapour, traces of oil, oil vapour and grease
- using the machine in non-commercial plants if the necessary precautions and protective measures have not been taken in the plant
- installing in environments that are at risk of explosions
- using the machine in areas with ionising radiation
- back pressures on the outlet side of more than +0,1bars
- modifications to the machine and accessories

2.5 Personal qualifications and training

- Ensure that people entrusted with working on the machine have read and understood these operating instructions before starting work, particularly the safety instructions for installation, commissioning, maintenance and inspection work.
- Manage the responsibilities, competence and monitoring of staff
- all work must only be carried out be technical specialists:
  - Installation, commissioning, maintenance and inspection work
  - Working with electricity
- personnel being trained to work on the machine must be supervised by technical specialists only

2.6 Safety-conscious work

The following safety regulations apply in addition to the safety instructions and intended use listed in these instructions:

- Accident prevention regulations, safety and operating regulations
- the standards and laws in force

2.7 Safety notes for the operator

- hot parts of the machine must not be accessible during operation or must be fitted with a guard
- eople must not be endangered by the free extraction or discharge of pumped media
- Risks arising from electrical energy must be eliminated.

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2.8 Safety instructions for installing, commissioning and maintenance

- The operator will ensure that any installation, commissioning and maintenance work is carried out by authorised, qualified specialists who have gained sufficient information by an in-depth study of the operating instructions.
- Only work on the machine when it is idle and cannot be switched on again
- Ensure that you follow the procedure for decommissioning the machine described in the operating instructions.
- Fit or start up safety and protective devices again immediately after finishing work. Vor Wiederinbetriebnahme die aufgeführten Punkte für die Inbetriebnahme beachten
- Conversion work or modifications to the machine are only permissible with the manufacturer's consent.
- Only use original parts or parts approved by the manufacturer. The use of other parts may invalidate liability for any consequences arising.
- Keep unauthorised people away from the machine

2.9 Guarantee conditions

The manufacturer's guarantee or warranty will no longer apply in the following cases:

- Improper use
- Not complying with these instructions
- Operation by insufficiently qualified staff
- Using spare parts that have not been approved by **Gardner Denver Schopfheim GmbH**
- Unauthorised modifications to the machine or the accessories supplied by **Gardner Denver Schopfheim GmbH**

3 Transport, storage and disposal

3.1 Transportation

3.1.1 Unpack and check the delivery condition

a) Unpack the machine on receipt and check for transport damage.
b) Notify the manufacturer of transport damage immediately
c) Dispose of the packaging in accordance with the local regulations in force.

3.1.2 Lifting and transporting

WARNING

Death or limbs crushed as a result of the items being transported falling or tipping over.

▷ When transporting with the lifting device remember:
a) Select the lifting device suitable for the total weight to be transported.
b) Ensure that the machine cannot tip and fall.
c) Do not stop under a suspended load.
d) Put the goods to be conveyed on a horizontal base.

Lifting device/ Transporting with a crane

WARNING

Bodily injury resulting from improper operation
a) Loads crosswise to the ring level are not permitted.
b) Avoid impact stress.

a) Tighten the eyebolts (Fig. 1/1) firmly.
b) The machine must be suspended on the eyebolt using the lifting device for lifting and transporting.

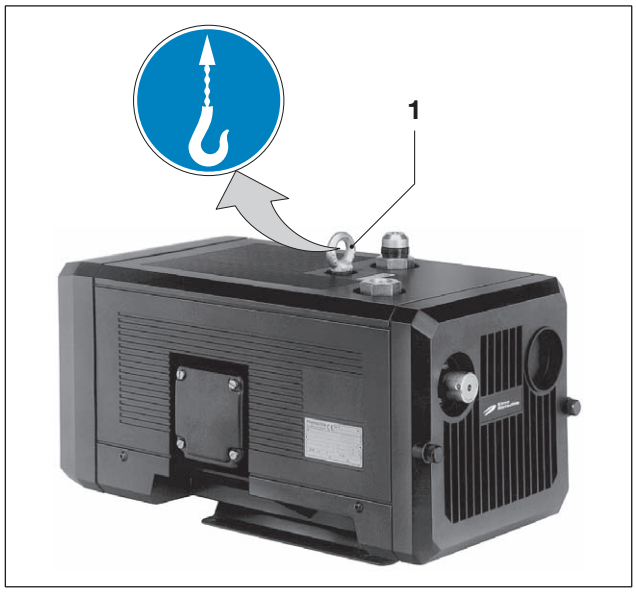


Fig. 1 Lifting and transporting

1 Eyebolt

3.2 Storage

NOTICE

Material damage caused by improper storage.

▷ Ensure that the storage area meets the following conditions:

a) dust free

b) vibration free

3.2.1 Ambient conditions for storage

Ambient conditions	Value
Relative humidity	0 % to 80 %
Lagertemperatur	-10°C to +60°C

The machine must be stored in a dry environment with normal air humidity. It should not be stored for more than 6 months.

see Info “Machine storage guidelines”, Page 4

3.3 Disposal

WARNING

Danger from inflammable, corrosive or poisonous substances.
Machines that come into contact with hazardous substances must be decontaminated before disposal.

▷ When disposing ensure the following::

a) Collect oils and grease separately and dispose of in accordance with the local regulations in force.

b) Do not mix solvents, limescale removers and paint residues

c) Remove components and dispose of them in accordance with the local regulations in force.

d) Dispose of the machine in accordance with the national and local regulations in force.

e) Parts subject to wear and tear (marked as such in the spare parts list) are special waste and must be disposed of in accordance with the national and local waste laws.

4 Set up and operation

4.1 Setup

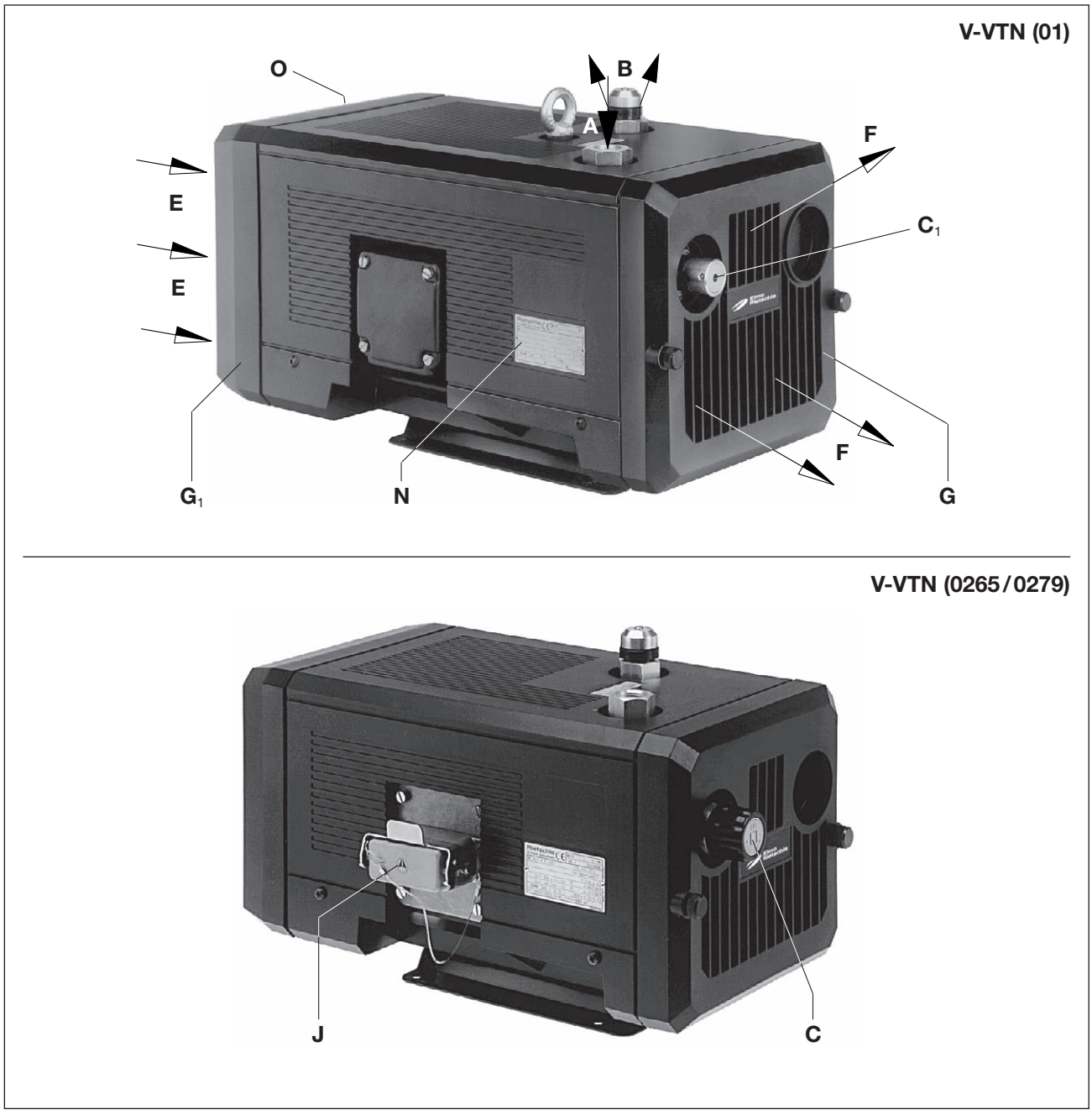
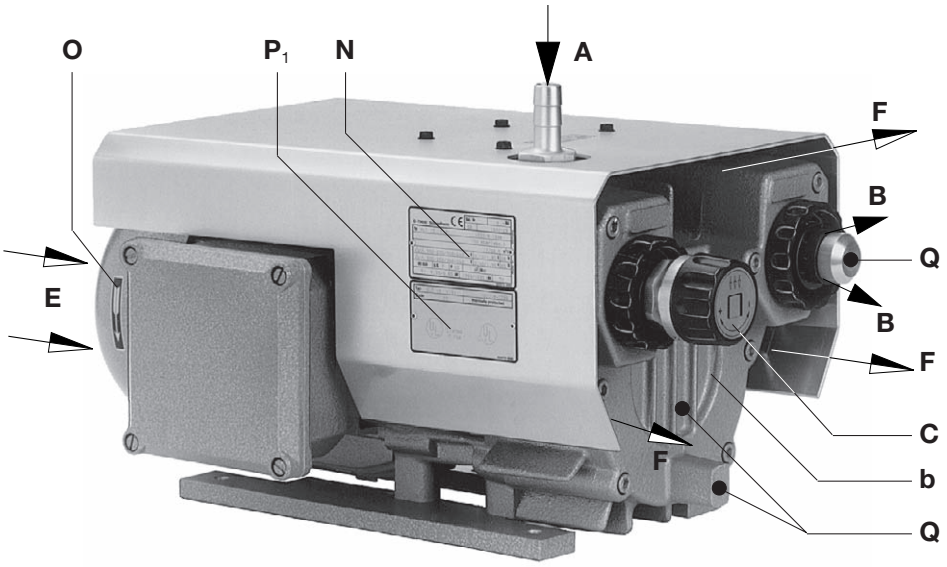


Fig. 2 Vacuum pump V-VTN (01) / V-VTN (02

A Vacuum connection
B Exhaust air outlet
C Vacuum regulating valve
C_1 Vacuum safety valve
E Cooling air inlet
F Cooling air outlet
G Outlet grid
G_1 Inlet grating
J Plug connection
N Data plate
O Rotation direction plate

V-VTN (13)



V-VTN (14)

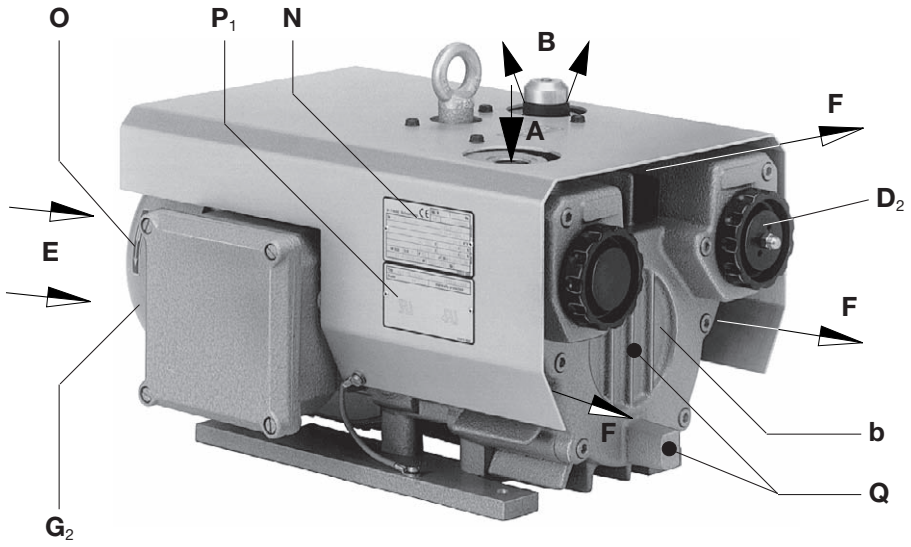
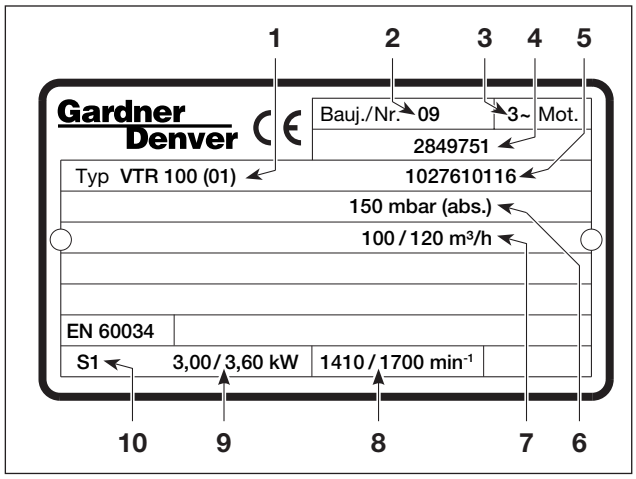


Fig. 3 Vacuum pump V-VTN (13) / V-VTN (14)

A Vacuum connection
B Exhaust air outlet
C Vacuum regulating valve
C_1 Vacuum safety valve
D_2 Ventilation valve
E Cooling air inlet
F Cooling air outlet
G_2 Cover
N Data plate
O Rotation direction plate
P_1 Motor data plate
Q hot surfaces > 70°C
b Housing lid

4.1.1 Datenschild



1	Type/ Size (mechanical version)
2	Year of construction
3	Motor design
4	Serial number
5	Item no.
6	Final pressure (abs.)
7	Pumping capacity 50 Hz/60 Hz
8	Speed 50 Hz/60 Hz
9	Motor output 50 Hz/60 Hz
10	Operating mode

4.2 Description

The V-VTN model range has a connecting thread on the suction side and an exhaust silencer on the pressure side. The aspirated air is cleaned by an inbuilt fine micro filter.
The motor and the pump have a common shaft.
The V-VTN compressor (01) to (11) is in a plastic sound cover. Inside the sound cover is also a fan that provides cooling.
The V-VTN (13) to (50) are located in a tin cover. It is cooled by the motor fan.
The V-VTN (14) has a ventilation valve on the pressure side (Fig. 3/D_2).
The V-VTN (02) and (13) have a vacuum regulating valve fitted as standard (Fig. 2/C) that enables the vacuum to be set to the required values which have an upper limit.

4.3 Areas of application

These dry running rotary vane vacuum pumps V- VTN 6 bis V- VTN 60 are suitable for evacuating closed systems and for a permanent vacuum in the intake pressure range 150 - 1000 mbars (abs.).

The pumping capacity with unrestricted suction is 6, 10, 15, 25, 40 and 60 m³/h at 50 Hz. Data sheet D 280 shows the dependency of the pumping capacity on the intake pressure

These dry running machines are suitable for conveying air with a relative humidity of 30 - 90 %.

If the unit is switched on more frequently (at regular intervals of about 10 times an hour) or at higher ambient temperatures and intake temperatures, the excess temperature limit of the motor winding and the bearings may be exceeded.Please contact the manufacturer should the unit be used under such conditions.

If it is installed in the open air the unit must be protected from environmental influences, (e.g. by a protective roof).

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5 Installation

5.1 Preparing for installation

Check the following points:

- Machine freely accessible from all sides
- Do not close ventilation grids and holes
- Sufficient room for installing and removing pipes and for maintenance work, particularly for installing and dismantling the machine
- No external vibration effect
- Do not suck any hot exhaust air from other machines into the cooling system.

To remove the outlet gridFig. 2/G), the inlet grating (Fig. 2/G_1) and the housing lid (Fig. 3/b) at least 30 cm of space must be available for maintenance work. You must also ensure that the cooling air inlets (Fig. 2/E) and cooling air outlets (Fig. 2/F) must be at least 10 cm away from the nearest wall (outgoing cooling air must not be sucked in again).

5.2 Installation

NOTICE

The machine may only be operated when it is set up horizontally.

Material damage resulting from the machine tipping over and falling.

When installed at more than 1000 m above sea level a reduction in power is noticeable. In this case we would ask you to contact us.

Ensure that the foundation complies with the following conditions:

- Level and straight
- The bearing surface must be able to bear the weight of the machine

It must be possible to install the machine on a firm foundation without anchoring. When installing on a substructure we recommend fixing with flexible buffers.

5.3 Connecting pipes

a) Vacuum connection at (Fig. 2/A).

NOTICE

Material damage resulting from the forces and torques of the pipes on the unit being too high.
screw pipes in by hand.

The pumping capacity of the vacuum pump is reduced if the suction pipe is too narrow and/or too long.

b) Check to ensure the suction pipe is connected correctly.

NOTICE

Length of the connection pipes
With connection pipes that have the same pipe cross section as the machine connection and are more than 3m long, a non-return valve especially for the purpose must be installed in order to avoid reverse operation when the machine has stopped.

5.4 Control and relief valve

The vacuum can be set by turning the control knob (Fig. 2/C) as shown on the symbol fitted to the button.

NOTICE

Do not operate without the standard control and relief valve.
If the permissible vacuum is exceeded (see data plate) the machine may be damaged.

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5.5 Connecting the motor

DANGER

Danger of death if the electrical installation has not been done professionally.
The electrical installation must only be done by a qualified electrician observing EN 60204. The operating company has to provide the main switch.

a) The electrical motor data can be found on the data plate (Fig. 2/N) or the motor data plate (Fig. 3/P_1). The motors comply with DIN EN 60034 and are in protection class IP 55 and insulation class F. The appropriate connection diagram is located in the motor's terminal box (not for the plug connection version). The motor data must be compared with the data of the existing mains network (current type, voltage, network frequency, permitted current value).

b) Connect the motor via the plug connection (Fig. 2/J) or a motor protection switch (for safety reasons a motor protection switch is required and cable fitting must be provided to provide strain relief for the connection cable). We recommend using motor protection switches with delayed switch off, depending on possible excess current. Temporary excess current may occur when the machine is started cold.

NOTICE

Power supply
The conditions at the installation location must match the information on the motor data plate. Without derating the following is permissible:
- ± 5% voltage deviation
- ± 2% Frequency deviation

6 Commissioning and decommissioning

6.1 Commissioning

WARNING

Improper use
May lead to severe or fatal injuries. Therefore be sure to obey the safety instructions.

CAUTION

Hot surfaces
When the machine is at operating temperature the surface temperatures on the components (Fig. 2/ Q) may go above 70°C.
You must avoid touching the hot surfaces (marked with warning plates).

CAUTION

Noise emission
The highest noise pressure levels measured as per EN ISO 3744 are given in Section 9.
When spending a long time in the vicinity of the running machine use ear protectors to avoid permanent damage to your hearing.

NOTICE

Wait until the machine stops
The machine must only be switched on again after it stops.

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6.1.1 Checking the rotation direction

▷ The drive shaft direction of rotation is shown by the rotation direction arrow (Fig. 2/O) on the motor flange.

a) Start the motor briefly (max. two seconds) to check the direction of rotation. When looking at the motor fan, it must rotate clockwise. .
The suction pipe must not be connected when starting up like this.

NOTICE

Incorrect direction of rotation
Running the machine in reverse for a long time may cause damage to the blades which may lead to the blades breaking. Use a phase sequence indicator to check the direction of rotation **(anti-clockwise rotating field)**.

6.2 Decommissioning/ storing

Stop the machine

a) Switch the machine off.

b) If available close the cut off device in the suction and pressure pipe.

c) Disconnect the machine from the electricity source.

d) Depressurise the machine: Open the pipes slowly.⇨ The pressure reduces slowly.

e) Remove the pipes and hoses.

f) Seal the connections for suction and discharge nozzles with adhesive foil.

see also Section 3.2.1, Page 11

6.3 Re-commissioning

a) Check the condition of the machine (cleanliness, cabling etc.).

For installation see Section 5 Page 15

For commissioning see Section 6.1 Page 18

7 Maintenance and repair

DANGER

Danger of death from touching live parts.
Before maintenance work disconnect the machine by pressing the main switch or unplugging it and ensure that it cannot be turned on again.

WARNING

Hot surfaces and equipment
During maintenance work there is the danger of getting burnt on hot components (Fig. 2/Q) and by the machine lubricating oil.
Wait for the machine to cool down.

7.1 Ensuring operational safety

Regular maintenance work must be carried out in order to ensure operational safety.

Maintenance intervals also depend on the operational demands on the machine.

With any work observe the safety instructions described in Section 2.8 “Safety notes for installation, commissioning and maintenance”.

The whole unit should always be kept in a clean condition.

7.2 Maintenance work

Interval	Maintenance to be carried out	Section
monthly	Check the pipes and screws for leaks and to ensure they are seated properly and if necessary seal again or tighten up.	—
monthly	Check the terminal box and cable inlet holes for leaks and if necessary re-seal.	—
monthly	Clean the regulating valve and ventilation slots on the machine and the motor cooling ribs. If there is a great deal of dust in the spaces on the cooling ribs clean them.	—
—	The machine‘s bearings are permanently lubricated and do not require re-lubricating.	—
monthly / every 6 months	Clean or replace filter cartridges	7.2.1
7.000 h - 1.000 h	Check blades ⇨ Replace blades	7.2.2

7.2.1 Air filtering

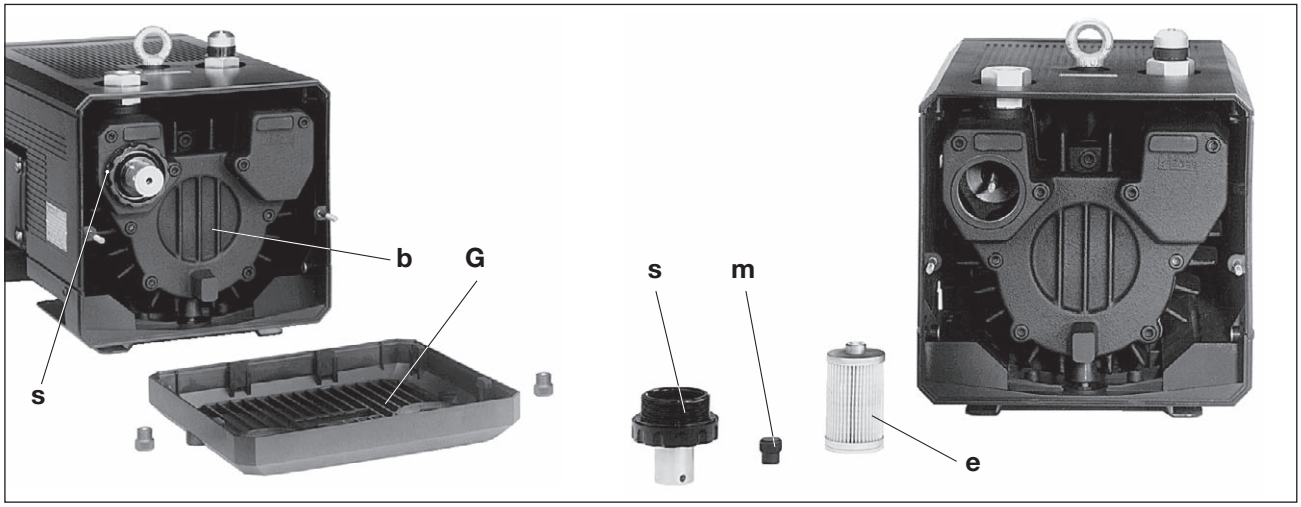

Fig. 5 Air filtering

G Outlet grid
b Housing lid
e Filterpatrone
m Knurled knob
o Knurled nut
s Screw cap

NOTICE

Insufficient maintenance on the air filter
The power of the machine lessens and damage may occur to the machine.

Die Filterpatrone (Fig. 5/e) für Saugluft ist monatlich oder je nach Verunreinigung öfters durch Ausblasen von innen nach außen zu reinigen. In spite of cleaning the filter its separation efficiency will continue to deteriorate. Therefore the filters should be replaced every six months.

Changing filters:

V-V-VTN (01) - (11): Unscrew the outlet grid (5/G). Undo the screw cap (Fig. 5/s) and the knurled knob (Fig. 5/m). Remove and clean or replace filter cartridges (Fig. 5/e). Reassemble in reverse order.

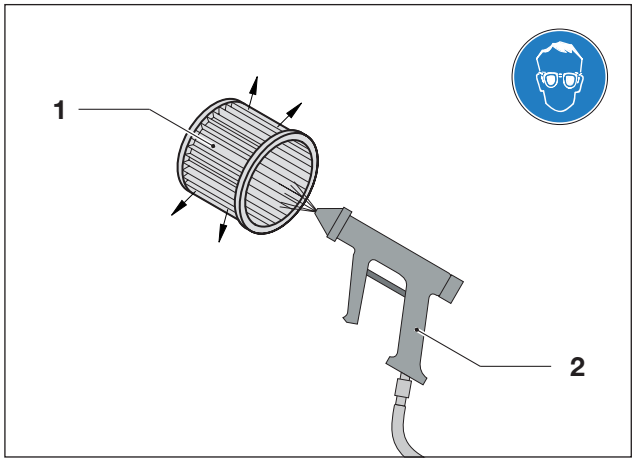

Fig. 6 Filterpatrone ausblasen

1 Filterpatrone
2 Druckluft

WARNING

Danger of injury when dealing with compressed air.
When blowing through with compressed air, solid particles may be carried along or powder dust swirling around may cause injury to the eyes. Therefore, when cleaning with compressed air always wear goggles and a dust mask.

7.2.2 Replacing blades

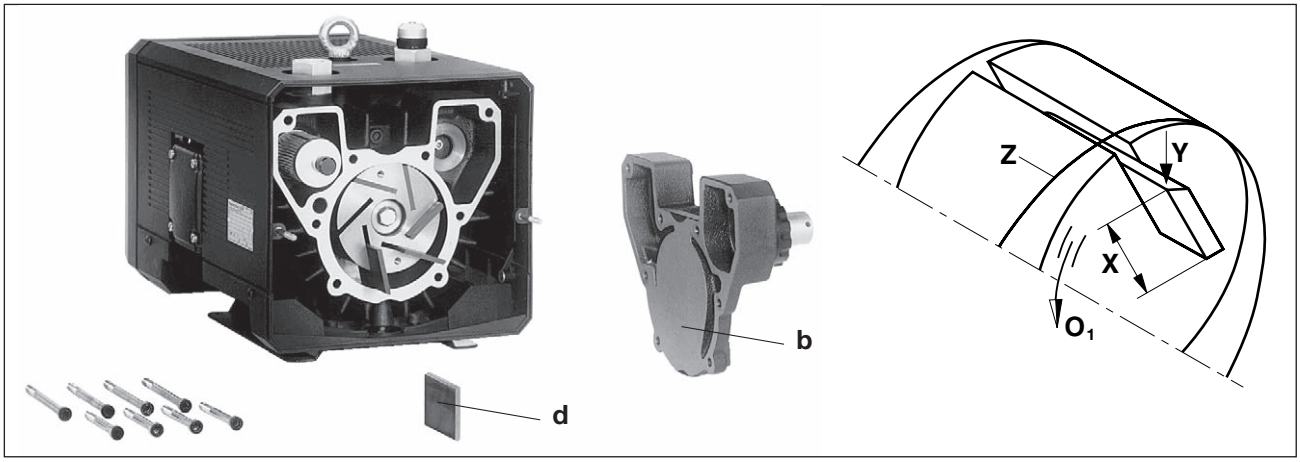

Fig. 7 Changing blades

O_1 Direction of rotation

X Minimum height

Y Slanting side of the blade

Z Drilled holes in the housing

b Housing lid

d Blade

Checking blades: V-DTN 6 - 25 have 6 carbon blades and V-VTN 40 / 60 has 7 carbon blades that wear out gradually during operation.
V-VTN 6 - V-VTN 15: First check after 7,000 operating hours, then every 1,000 operating hours.
V-VTN25: First check after 5,000 operating hours, then every 1,000 operating hours.V-VTN 40 / V-VTN 60: First check after 3,000 operating hours, then every 1,000 operating hours.
V-VTN (01) - (11): Unscrew the outlet grid (Fig. 6/G). Unscrew the housing cover (Fig. 7/b) from the housing. Remove the blades (Fig. 7/d) to be checked. All blades must have a minimum height (Fig. 7/X):

Type	X (minimum height)
V-VTN 6, 10	20 mm
V-VTN 15, 25	24 mm
V-VTN 40	35 mm
V-VTN 60	37 mm

The blades must only be changed as a set.

Changing blades: If you detect during the blade check that the minimum height has been reached or it has fallen below the minimum height, the blade set must be changed.Blow out the housing and the rotor slot. Insert the blades into the rotor slot. When doing this you must ensure that the blades with the sloping side (Fig. 7/Y) point outwards and the direction of rotation of these sloping sides (Fig. 7/O_1) matches that of the drilled holes for the housing (Fig. 7/Z). Screw on the housing lidFig. 7/b) and outlet grid (Fig. 6/G). Before starting up check that the blades run freely by moving the fan round, including the inlet grating (Fig. 2/G_1) or unscrew the cover (Fig. 3/G_2).

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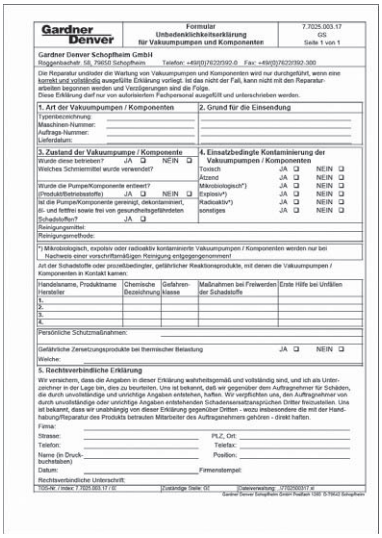
7.3 Reparatur/ Service

a) For on site repair work the motor must be disconnected from the mains by a qualified electrician so that it cannot be started up again accidentally. For repairs use the manufacturer, its branch offices or authorised dealers. Please contact the manufacturer for the address of the service centre responsible for you (see Manufacturer‘s address).



Gardner Denver

Formular
Unbedenklichkeitserklärung
für Vakuumpumpen und Komponenten

7.7025.003.17
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Seite 1 von 1

Gardner Denver Schopfheim GmbH
Roggenbacher Str. 79650 Schopfheim Telefon: +49(0)7623/592-0 Fax: +49(0)7623/592-300

Die Reparatur und/oder die Wartung von Vakuumpumpen und Komponenten wird nur durchgeführt, wenn eine korrekt und vollständig ausgefüllte Erklärung vorliegt. Ist das nicht der Fall, kann nicht mit den Reparaturarbeiten begonnen werden und Verzögerungen sind die Folge.
Diese Erklärung darf nur von autorisiertem Fachpersonal ausgefüllt und unterschrieben werden.

1. Art der Vakuumpumpen / Komponenten
Typenbezeichnung:
Maschinen-Nummer:
Auftrags-Nummer:
Lieferdatum:

2. Grund für die Einsendung

3. Zustand der Vakuumpumpe / Komponente
Wurde diese betrieben? JA ❑ NEIN ❑
Welches Schmiermittel wurde verwendet?
Wurde die Pumpe/Komponente entleert? (Produktbetriebsstoffe) JA ❑ NEIN ❑
Ist die Pumpe/Komponente gereinigt, dekontaminiert, öl- und fettfrei sowie frei von gesundheitsgefährdeten Schadstoffen? JA ❑
Reinigungsmittel:
Reinigungsmethode:

4. Einsatzbedingte Kontaminierung der Vakuumpumpen / Komponenten
Toxisch JA ❑ NEIN ❑
Ätzend JA ❑ NEIN ❑
Mikrobiologisch*) JA ❑ NEIN ❑
Explosiv*) JA ❑ NEIN ❑
Radioaktiv*) JA ❑ NEIN ❑
sonstiges JA ❑ NEIN ❑

*) Mikrobiologisch, explosiv oder radioaktiv kontaminierte Vakuumpumpen / Komponenten werden nur bei Nachweis einer vorschriftsmäßigen Reinigung entgegengenommen!

Art der Schadstoffe oder prozessbedingter, gefährlicher Reaktionsprodukte, mit denen die Vakuumpumpen / Komponenten in Kontakt kamen:

Handelsname, Produktname Hersteller	Chemische Bezeichnung	Gefahren klasse	Maßnahmen bei Freiwerden der Schadstoffe	Erste Hilfe bei Unfällen
1.				
2.				
3.				
4.				

Persönliche Schutzmaßnahmen:

Gefährliche Zersetzungsprodukte bei thermischer Belastung JA ❑ NEIN ❑
Welche:

5. Rechtsverbindliche Erklärung
Wir versichern, dass die Angaben in dieser Erklärung wahrheitsgemäß und vollständig sind, und ich als Unterzeichner in der Lage bin, dies zu beurteilen. Uns ist bekannt, daß wir gegenüber dem Auftragnehmer für Schäden, die durch unvollständige und unrichtige Angaben entstehen, haften. Wir verpflichten uns, den Auftragnehmer von durch unvollständige oder unrichtige Angaben entstehenden Schadensersatzansprüchen Dritter freizustellen. Uns ist bekannt, dass wir unabhängig von dieser Erklärung gegenüber Dritten - wenn insbesondere die mit der Handhabung/Reparatur des Produkts betrauten Mitarbeiter des Auftragnehmers gehören - direkt haften.
Firma:
Strasse: PLZ, Ort:
Telefon: Telefax:
Name (in Druckbuchstaben): Position:
Datum: Firmenstempel:
Rechtsverbindliche Unterschrift:

Fig. 8 Clearance certificate 7.7025.003.17

NOTICE

For each machine that is sent to an Elmo Rietschle Service centre for inspection, maintenance or repair, a fully completed, signed declaration of harmlessness must be enclosed.
The declaration of harmlessness is part of the supplier‘s documentation.

b) After a repair or re-commissioning, the actions listed under „Installation“ and „Commissioning“ must be carried out as for initial commissioning.

7.4 Spare parts

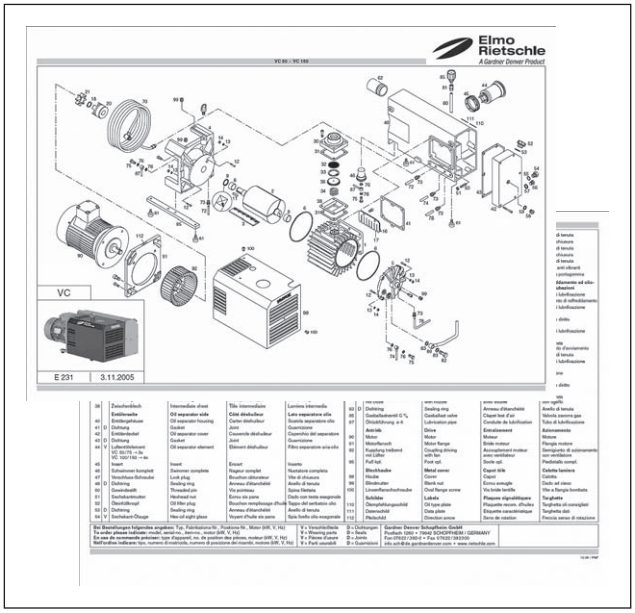

Fig. 9 Spare parts list (example)

Gardner Denver
Klicken Sie hier, wenn Sie den Katalog ohne Zugangskennung benutzen möchten - keine Bestellmöglichkeit
Click here, if you want to acess the catalog without using a password - no ordering possible
Bitte wählen Sie Ihre Sprache
Please choose your language

Fig. 10 Web site
http://www.service-er.de

Order spare parts in accordance with the:

- **Spare parts list::**
  E 280 → V-VTN 6 - V-VTN 60 (01) - (11)
  E 280/13 → V-VTN 15 (13)
  E 280/14 → V-VTN 15 (14)
  E 280/20 → V-VTN 10 / 15 (20)
  - Download the PDF file:
    http://www.gd-elmorietschle.com
    → Downloads
    → Product Documents
    → V-Series → Spare Parts
  - Parts subject to wear and gaskets are indicated separately on the list.
- **Web site:**
  http://www.service-er.de
  - Select the type, size and design.

NOTICE

Only use original spare parts or parts approved by the manufacturer. The use of other parts may lead to malfunctions and invalidate liability or the guarantee for any consequences arising.

8 Malfunctions: Causes and elimination

Fault	Cause	Troubleshooting	Important
Machine is switched off by the motor protection switch	Mains voltage/ Frequency does not correspond with the motor data	Check by qualified electrician	Section 5.5
	Connection to motor terminal board is not correct		
	Motor protection switch is not set correctly		
	Motor protection switch is triggered too quickly	Use a motor protection switch with an overload-dependent delayed switch off that takes into consideration the short term excess current at start up (version with short circuit and overload trigger as per VDE 0660 Part 2 orIEC 947-4)	
	The regulating valve is dirty so that the permissible vacuum value is exceeded.	Clean or replace the regulating valve	Section 7.2 Section 7.4
Pumping capacity is insufficient	The intake filter is dirty	Clean or replace the intake filter	Section 7.2.1 Section 7.4
	The suction pipe is too long or too narrow	Check the hose or the pipe	Section 5.3
	Machine or system leaking	Check the pipework and screw connections for leaks and to ensure that they are firmly seated.	Section 7.2
	Blades are damaged	Replace blades	Section 7.2.2 Section 7.4

Fault	Cause	Troubleshooting	Important
Final pressure (max. vacuum) is not reached	Machine or system leaking	Check the pipework and screw connections for leaks and to ensure that they are firmly seated.	Section 7.2
	Blades are worn or damaged	Replace blades	Section 7.2.2 Section 7.4
Machine gets too hot	Ambient or intake temperature is too high	Ensure it is being used properly	Section 2.3
	Cooling air supply is obstructed	Check environmental conditions	Section 5.1
		Clean ventilation slots	Section 7.2
	The regulating valve is dirty so that the permissible vacuum value is exceeded.	Clean or replace the regulating valve	Section 7.2 Section 7.4
The machine makes an abnormal noise	The compressor housing is worn (chatter marks)	Repair by manufacturer or authorised workshop	Elmo Rietschle Service
	The regulating valve is vibrating	Replace the valve	Section 7.4
	Blades are damaged	Replace blades	Section 7.2.2 Section 7.4
Please contact Elmo Rietschle Service for other malfunctions or those that cannot be eliminated.			

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9 Technical Data

V-VTN			6	10	15	25	40	60
Sound pressure level (max.) EN ISO 3744 Tolerance± 3 dB(A)	dB(A)	50 Hz	62	64	65	68	72	75
		60 Hz	63	65	66	70	74	77
Weight (max.)	kg	3 ~	16	19,3	26,8	30,7	46,7	47,4
		1 ~	17	20,6	27,2	31,9	47,0	-

V-VTN (01) - (11)		6	10	15	25	40	60
Length	mm	370	390	442	473	545	545
Length+ ZRV	mm	402	422	476	507	593	593
Width	mm	214	214	242	242	274	274
Height	mm	208	208	246	246	272	272
Vacuum connection		G $^{3}/_{8}$	G $^{3}/_{8}$	G $^{1}/_{2}$	G $^{1}/_{2}$	G $^{3}/_{4}$	G $^{3}/_{4}$

V-VTN		15 (13)	15 (14)	15 (15)	10 (20)	15 (20)	10 (50)
Length	mm	427	382	413	339	404	318
Width	mm	248	248	248	204	231	204
Height	mm	230	215	194	180	195	195

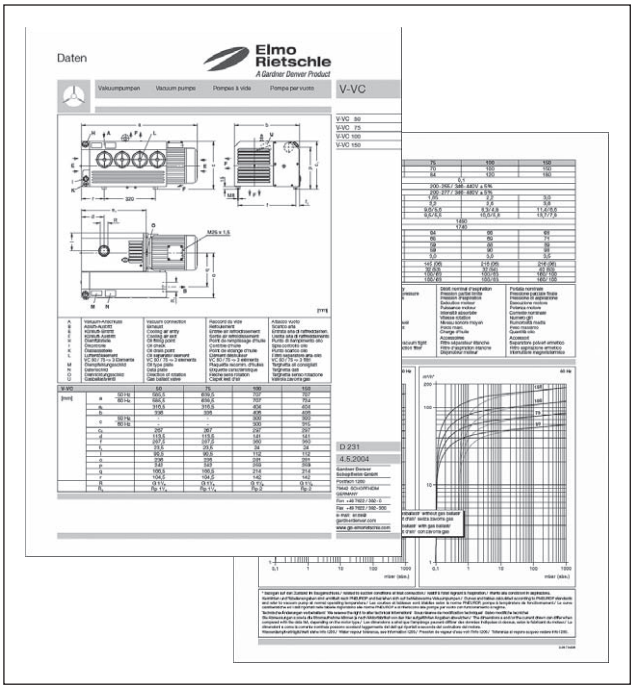

Fig. 11 Data sheet (example)

You will find more technical data on the data sheet **D 280**

- Download the PDF file
  D 280 → V-VTN 6 - V-VTN 60
  - Download the PDF:
    http://www.gd-elmorietschle.com
    → Downloads
    → Product Documents
    → V-Series → Data Sheets

NOTICE

Subject to technical changes.

Elmo Rietschle
A Gardner Denver Product

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79650 Schopfheim · Deutschland
Tel. +49 7622 392-0
Fax +49 7622 392-300

Gardner Denver

Elmo Rietschle is a brand of Gardner Denver's Industrial Products Division and part of Blower Operations.

Gardner Denver

EC - declaration of conformity 98/37/EC or 2006/42/EC*)

Hereby the manufacturer confirms:	Gardner Denver Schopfheim GmbH Postfach 1260 D-79642 Schopfheim
that the machine:	Vacuum pump
of the:	Series: V-VTN
	Type: V-VTN 6, V-VTN 10, V-VTN 15, V-VTN 25, V-VTN 40, V-VTN 60

is conform to the regulations of the guideline indicated above.

Furthermore, the designated product is conform to the regulations of the following guidelines:

2006/95/EC** Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (codified version)

The following harmonized and national standards and specifications are applied:

EN 1012-1:1996 Compressors and vacuum pumps — Safety requirements — Part 1: Compressors

EN 1012-2:1996 Compressors and vacuum pumps — Safety requirements — Part 2: Vacuum pumps

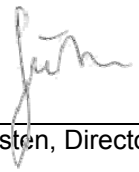
These declarations of conformity are invalid when the machine has been modified without prior approval by us and the approval has been documented in writing.

Name and address of the EC person in charge for documentation ***)

Wolfgang Darsch
Postfach 1260
D-79642 Schopfheim

Gardner Denver Schopfheim GmbH

Schopfheim, 01.12.2009



Dr. Friedrich Justen, Director Engineering

*) The machine fulfils the material requirements of both guidelines

**) applies only to the guideline 98/37/EC

***) applies only to the guideline 2006/42/EC

C_0083_EN

Gardner Denver	**Safety declaration form for vacuum pumps and components**	7.7025.003.17 Page 1 of 1

Gardner Denver Schopfheim GmbH
Roggenbachstr. 58, 79650 Schopfheim Phone: +49/(0)7622/392-0 Fax: +49/(0)7622/392-300

Repairs and/or maintenance of vacuum pumps and components will only be carried out if a declaration has been filled in correctly and completely.
If not, the repair work cannot be started and delays will result.
This declaration must only be filled in and signed by authorised qualified staff.

1. Type of vacuum pumps/ components	**2. Reason for the submission**
Type description: _____ Machine number _____ Order number: _____ Delivery date: _____	_____ _____ _____ _____

3. Condition of vacuum pumps/ components	**4. Contamination of the vacuum pumps/ components when in use**
Was this being operated? YES ❑ NO ❑ Which lubrication was used?	Toxic YES ❑ NO ❑ Corrosive YES ❑ NO ❑ Microbiological*) YES ❑ NO ❑ Explosive*) YES ❑ NO ❑ Radioactive*) YES ❑ NO ❑ other YES ❑ NO ❑
Was the pump/ component emptied? (Product/Consumables) YES ❑ NO ❑	
Has the pump/ component been cleaned and decontamina YES ❑	
Cleaning agent:	
Cleaning method:	

*) Microbiological, explosive or radioactively contaminated vacuum pumps/ components will only be accepted with proof that they have been cleaned properly.

Type of toxic substance or process-related, dangerous reaction products with which the vacuum pumps/ components came into contact:

Trade name, manufacturer's product name	Chemical name	Hazard class	Action to be taken if toxic substances are released	First aid in the event of accidents
1				
2				
3				
4				

Personal protection measures: _____

Hazardous decomposition products when subjected to thermal load YES ❑ NO ❑

Which? _____

5. Legally binding declaration

We swear that the information in this declaration is accurate and complete and that I, the undersigned, am in a position to judge this. We are aware that we are liable to the contractor for damage caused by incomplete and inaccurate information. We undertake to release the contractor from any damage claims from third parties arising from incomplete or incorrect information. We are aware that, regardless of this declaration, we are directly liable to third parties including in particular the contractor's staff entrusted with handling or repairing the product.

Company: _____

Street: _____ Post code/ Town: _____

Phone: _____ Fax: _____

Name (in capitals) _____ Position: _____

Date: _____ Company stamp:

Legally binding signature: